USAF-MISC

173814

DEPARTMENT OF THE AIR FORCE
AIR FORCE RESERVE

FROM: 910 AG/DOS
King Graves Road
YARS Vienna OH 44473-0910

16 March 1993

SUBJ: 1992 USAFR Emergency Mosquito Aerial Spray Operations as Part of the FEMA Hurricane Andrew Relief Effort in Florida

TO: CC

1. **SUMMARY.**

On 3 September 1992, Headquarters USAF was tasked by CINCFOR to conduct aerial spray operations to control mosquitoes in support of the Federal Emergency Management Agency (FEMA) Hurricane Andrew relief effort (Atch 1). Thirty-two 910 AG personnel (Atch 2) were involved in the spray mission from 5 September through 6 October 1992. Four spray sorties utilizing 16.5 flying hours were flown to spray a total of 279,168 acres (Atch 3). Pesticide was applied at one ounce per acre. Effectiveness in controlling the target pest mosquito Aedes taeniorhynchus was 99% for the first and third sprays and 95% and 93% for the second and fourth sprays respectively. The capability of the 910 AG Aerial Spray Branch to treat large areas with one sortie proved to be a major advantage in getting long-term mosquito control after Hurricane Andrew.

2. **BACKGROUND:**

During the early morning hours of Monday 24 August 1992, Hurricane Andrew decimated a 20-mile wide east-to-west strip of South Florida (Atch 4). Winds in excess of 165 MPH battered an urban area centered around Homestead FL. Monetarily, Hurricane Andrew turned out to be the most costly natural disaster in US history. A total of 15 people died as a direct result of the storm with 23 more deaths indirectly related to the Hurricane (Atch 5). The death toll would have been even higher without the early warning and evacuation of 700,000 people. More than 25,000 homes were destroyed with another 100,000 damaged leaving 175,000 people homeless in South Florida. Military personnel totaling 22,000 were deployed to assist with the recovery effort.

Large pestiferous populations of the salt-marsh mosquito, Aedes taeniorhynchus, severely hampered cleanup efforts. Victims left homeless and thus constantly exposed to mosquito bites found the situation intolerable. Under normal conditions comparable mosquito populations would have been more tolerable as residents could have sought shelter from the mosquitoes in their homes.

Since 910 AG Aerial Spray personnel were at Avon Park AFR FL for routine aerial spraying operations when the request was received to spray for Hurricane Andrew relief, the 910 AG Research Entomologist went to Dade County and met with state, county and CDC personnel to develop a plan for using the 910 AG Aerial Spray Branch to control the salt-marsh mosquito problem. As requested by the tasking message (Atch 1), the 910 AG aerial spray effort was under the direction of Capt J.R. Gorham, Director of the FEMA Relief Effort Public Health Service Organization. Capt Gorham immediately appointed an Aerial Spray Flight Task Force (ASFTF) headed by Dr Roger Nasci from CDC, Ft Collins CO, to supervise the aerial spray operations. The organizational chart of Capt Gorham's unit and a listing of the ASFTF are included as Attachment 6.

The first decision made by the Aerial Spray Flight Task Force was to have the 910 AG begin spraying on 6 April 1992 and spray 3 large areas on a rotating basis until the mosquito surveillance data indicated that effective control had been achieved. They also decided to have the 910 AG operate out of Avon Park AFR FL because of the damage to local facilities and the high usage of operational air facilities due to the relief efforts.

3. **DISCUSSION:**

a. **Entomological Factors:**

(1) Pesticide. The decision to use Dibrom 14 (85% naled) for the 910 AG aerial spray operation was made by the ASFTF. Captain Gorham elected to use the maximum application rate of one ounce per acre to optimize the sprays' effectiveness for controlling filth flies and biting midges as well as the target salt-marsh mosquito. Other advantages for selecting naled are that it is the least costly alternative; virtually odorless; effective in controlling filth flies and biting midges; and harmless to automobile paint. FEMA, CDC and state officials requested the 910 AG procure the pesticide.

(2) Spray Timing. The 910 AG Research Entomologist decided on evening sprays to minimize the impact on bees and to utilize the more consistent evening winds for wider swaths. The Task Force quickly determined that bee populations in the spray area were not an issue as bees were virtually eliminated by the Hurricane.

authorities and enforced by governing personnel. The HRS environmental health program has bilingual employees who can explain the rules to those currently residing in the camps. New people who register at the camp must be informed of the rules at the time of registration and acknowledge by signature that they will abide by the rules.

The HRS environmental health employees should conduct daily camp inspections to ensure that all residents are in compliance with the rules. A notice to comply will be issued to any individual not meeting the rules of the camp. A plan must be written to deter repeated violations. The health of the entire camp must be maintained as the number one priority.

The following rule violations have been recurring and must be resolved for the protection of the health and well being of the camp occupants.

1. Stockpiling of foods in resident tents.
2. Misuse of electrical power. (Limited electrical power is available for lights and radios only. Fans, televisions, and other appliances are used by residents which creates an unsafe condition. These appliances were connected by use of non-grounded extension cords.)
3. Smoking and cooking within the confines of the tents.
4. Unauthorized access to camp by non residents.
5. Misuse of available showers and portable toilets. (Human feces has been found on the floors of showers and portable toilets.)
6. Failure of residents to place discarded items in waste receptacles.
7. Charcoal and propane barbecue grills used in and around the tents.

Staffing Functions

Present Condition: The following minimum staff should be available to serve the environmental health needs of the camp:

One (1) Registered Sanitarian
One (1) Safety Inspector
One (1) Food Service Inspector

(3) Surveillance. Captain Gorham insisted that all aerial spraying operations in support of the FEMA relief effort be predicated upon good surveillance data. Biting counts and citizen complaint surveillance was provided by the Dade County Mosquito Control Division (Atch 7). A CO_2-baited trap mosquito surveillance program was conducted by Navy personnel from the Navy Disease Vector Ecology and Control Center, Jacksonville FL and the Navy Environmental and Preventative Medicine Unit No. 2, Norfolk VA. A listing of Navy personnel providing surveillance support and a brief description of their protocols are included in Attachment 8.

(4) Spray Swath. Swath widths were set at 2,500 feet for areas with a crosswind and 1,250 feet for areas with into wind spray runs. As it turned out, we were able to make all applications with an almost direct crosswind generally from the east except for the last spray when the winds were from the south. With the streets laid out 1 mile apart on east/west and north/south heading, the navigation was simplified.

(5) Spray Configuration:

(a) Spray Aircraft. C-130H

(b) Spray System. First two modules of the C-130 Modular Aerial Spray System (MASS).

(c) Boom Configuration. Stainless steel 10-foot wing booms with 8005 Tee Jet® nozzles oriented straight down.

(6) Determination of Spray Areas. All spray areas were established by the ASFTF based upon mosquito surveillance data. The first thing that they did was to outlined the total area for possible spray operations as shown in Attachment 9. The areas actually sprayed are shown in Attachments 10-12.

(7) Spray Monitoring. All spray operations were monitored by ASFTF. The first three sprays were monitored by all members of the Task Force from a military helicopter. The 29 September aerial spray operation was monitored by the Dade County and 910 AG Task Force representatives from a ground vehicle. The Task Force served as the Certified Pesticide Applicators required to supervise aerial pesticide applications in the United States. At all times during the spray operation, the Certified Applicators directed the spray operation by maintaining radio contact with the flight crew.

b. **Maps.** Both 1:24,000 and 1:100,000 scale topographical maps were used during the mosquito spray missions. The 910 AG anticipated the probable need for maps when Hurricane Andrew struck South Florida and quickly placed a rush order for 48 hour delivery utilizing the contingency ordering procedures established for aerial spray emergency operations. The maps needed for this operation arrived as requested. Later attempts to obtain additional maps were unsuccessful because the demand from numerous agencies had depleted available stocks.

c. **Public Affairs:**

(1) News Conference. An essential part of any high profile deployment like this one is to take public affairs representatives to handle the press. Press inquiries and the requirement for public notification can quickly overwhelm operational personnel who are very busy trying to set up and execute a successful mission. The public affairs representatives who deployed with this operation (see Atch 2 for listing) set up a news conference at Tamiami Airport to give the news media an opportunity to see and photograph the C-130 spray aircraft and aircrew. Three TV stations and one newspaper reporter attended.

(2) Public Notification. Press releases were prepared by our PA representatives, coordinated with all members of the ASFTF, and submitted for release to the DOD PA representatives working in FEMA PA. The initial news release is included as Attachment 13. News coverage was very light for this operation primarily because of the massive military contingent deployed as part of the relief effort. Two articles appearing in government publications are included as Attachments 14 and 15.

d. **Other Aerial Spray Operations.** Prior to requesting the assistance of the 910 AG Aerial Spray Branch, mosquito control organizations from Dade County and the surrounding counties aerially sprayed 310,629 acres in the Dade County disaster area. A photo of this effort is shown in Attachment 16. Although the CO_2-baited trapping program had not begun, mosquito biting counts indicated that these sprays were providing short-term relief in the sprayed areas. When the surrounding counties could no larger provide their spray assets due to their own needs and the Dade County Mosquito Control personnel became overtaxed from 70-98 hour workweeks, a request was made for our assistance. The largest area treated in 1 sortie by the locally available aircraft was 23,040 acres. With the flight range of the salt-marsh mosquito, larger areas needed to be treated to provide long-term benefits. On the first sortie, the 910 AG was able to treat 72,960 acres. A summary of all Hurricane Andrew relief aerial spray operations is included in Attachment 17.

4. **RESULTS:**

a. **Treatment Totals.** A total of 279,168 acres were treated by 910 AG personnel from 6-29 September 1992 as part of the FEMA relief effort. To accomplish this work, 16 spray and ferry sorties totaling 39.5 hours were flown.

b. **Control Effectiveness for Aedes taeniorhynchus.** Post-spray reductions of Aedes taeniorhynchus collections from the CO_2-baited traps in the spray areas was 99%, 95%, 99% and 93% for sprays 1-4, respectively. The initial spray only showed short-term effectiveness in Spray Area A (Atch 10) probably because the wildlife areas along the east coast were not sprayed. They provided sufficient harborage to allow rapid reinvasion of the spray areas by mosquitoes. We experienced unprecedented benefits from our third spray as shown in Attachment 18. After the third spray, 16 days of nearly complete relief from A. taeniorhynchus was observed in the spray areas. The primary reasons for this exceptional success were the coordination of spray assets, the permission to spray wildlife refuge areas, and the good fortune with the absence of new broods of mosquitoes to reinvade the area. The simultaneous coordination of county aerial spray assets treating the north, with our spray in the south resulted in the treatment of nearly 100,000 acres during a 3-hour period. Killing better than 93% of the mosquitoes over such a large area with the heaviest mosquito populations all in one evening seemed to be the key. Additionally, the mosquito complaint calls to the Dade County Mosquito Control offices were dramatically reduced after each spray operation. The County Mosquito Control personnel were able to spot treat the few small localized areas with mosquito problems. The success of the large-area C-130 aerial sprays had another side benefit of allowing the County Mosquito Control personnel to return to essentially a normal 5-day a week operation.

c. **Control Effectiveness for Culex nigripalpus.** Another mosquito, Culex nigripalpus, a potential vector of St Louis Encephalitis, was also trapped in significant numbers. This mosquito was not effectively reduced by the spraying in the CO_2-baited light trap collections in Spray Area A (Atch 10) but seemed to be reduced in Spray Area B (Atch 11) as shown by the results in Attachment 19. Some of the reasons given for these results were the great surveillance variability observed with this species, the condition of spraying in winds too high for them to fly, and the numerous trash piles in which they could hide making them inaccessible to the spray. We determined this potential vector was not a problem for transmitting disease since most of the mosquitoes collected were very young. More details on why Culex nigripalpus were considered to be a low vector threat is explained in Attachment 20.

d. **Control Effectiveness for Filth Flies and Biting Midges.** Although a filth fly monitoring program was not established, filth fly populations were observed to be very low. This was particularly interesting since conditions following Hurricane Andrew appeared to be ideal for filth fly development. Perhaps the large area aerial sprays for mosquito control by the counties and the 910 AG gave a secondary benefit of filth fly control. Capt Ryan an Army Entomologist deployed to the devastated area during the 910 AG aerial spray operations personally reported a one or two day decline in biting midge activity following the first and third sprays of Area A where he was deployed.

5. **CONCLUSIONS:**

a. The success of this operation was due in large part to the following factors:

(1) The establishment of an Aerial Spray Flight Task Force of knowledgeable experts.

(a) Dr Roger Nasci and Bill Opp had an excellent understanding of the C-130 military capability since they had just attended the DOD Aerial Dispersal of Pesticide Certification Course 12 months earlier.

(b) Both Dade County Entomologists had an excellent understanding of the local mosquito population dynamics.

(2) Planning aerial spray operations based on the excellent surveillance data provided by Dade County and the Navy.

(3) The ability of the 910 AG Aerial Spray Branch to treat a large area (75,000 acres) in one 2-3 hour sortie.

(4) Being able to treat with consistent direct crosswinds to avoid skips.

(5) The lack of vegetative overstory which enhanced spray penetration.

(6) Good ASFTF primary and backup plans.

(7) Using Dibrom 14 at the maximum application rate of 1 ounce/acre.

(8) Good helicopter support to enhance ASFTF monitoring which saved the third spray when winds shifted.

(9) The superb cooperation between all ASFTF members.

(10) Bill Opp obtaining permission to spray the wildlife areas along the coast therefore eliminating mosquito harborage.

(11) Coordinating the County and 910 AG spray operations on one night to spray nearly 100,000 acres and give 16 days of relief from severe mosquito infestations.

b. Operating from a site outside a disaster area has several advantages in the areas of temporary quarters, operating supplies, ground transportation, parking space, communications, and minimal confusion. The C-130 is uniquely capable of operating 200-300 miles away from the disaster and still spraying a large area in one sortie.

6. **ACKNOWLEDGEMENTS.** We received outstanding support from Dr Nasci, Capt Gorham, Bill Opp, the Navy, Army helicopter units, Mark Latham, Marlon Nelms and the entire Dade County Mosquito Control Division. The Installation Commander, The Range Officer, and the Civil Engineer and all their staffs at Avon Park AFR FL served as perfect hosts during the time we operated out of their facilities to spray Dade County. A particular thanks to Alan Curtis, Research Entomologist with the Indian River Mosquito Control District, for his assistance in photographically documenting our aerial spray operations.

Terry L Biery

TERRY L BIERY, LT COL, USAFR
Research Entomologist

20 Atch
1. Ft McPherson Msg
2. Participants
3. Flight Summary Table
4. Weather Map
5. Hurricane Toll
6. Org Chart
7. Dade County Personnel
8. Navy Participants
9-12. Maps
13. News Release
14-16.News Articles
17. Spray Summary Table
18-19 Results Charts
20. A Curtis Ltr

cc:
HQ AFRES/CC/DO/SG/PA/CEV/
XPX/PAM
4 AF/CC/DO
440 AW/CC/DO
910 OG/PA
AFPMB

CLASS: UNCLASSIFIED

SUBJECT: REQUEST FOR AERIAL SPRAY SUPPORT

PAAUABCD 2470100-UUUU--
ZNR UUUUU
P 0301002 SEP 92 ZYB
FM CINCFOR FT MCPHERSON GA//FCJ3-CAT//
TO HQ USAF WASHINGTON DC//DEP DOMS//
HQ ACC LANGLEY AFB VA//BSD/CK/LGX/PA//
INFO USCINCTRANS SCOTT AFB IL//TCJ3/TCJ3-DU//
USCINCLANT NORFOLK VA//J33/J522//
JOINT STAFF WASHINGTON DC//J3-JOD/J4//
AF OPS SPT CTR WASHINGTON DC
HQ USAF WASHINGTON DC//PA//
HQ AFRES ROBINS AFB GA//CC/DO/DOOC/DOOH//
HQ 4THAF MCCLELLAN AFB CA//CA/DO//
CDRUSATUO FT GILLEM GA//AFKD-OP//
CDRXVIIIABNCORPS FT BRAGG NC//AFZA-OT//
FEMA HQ WASHINGTON DC//SL-OE-FR-OP//
AFNSEP FT MCPHERSON GA//EP//
ZEN CJTF ANDREW MIAMI FL
BT
UNCLAS
OPER/HURRICANE RESPONSE/CINCFOR/HURRICANE ANDREW//
MSGID/GENADMIN/FORSCOM FCJ3-CAT/SPRAY/SEP//
SUBJ/REQUEST FOR AERIAL SPRAY RESOURCES//
POC/REYNOLDS/COL/PRIPHN:DSN 367-6404/-/FT MCPHERSON GA//
AKNLDG/NO//
REF/A/TEL/FORSCOM FCJ3-CAT/02SEP92//
AMPN/PHONCON WITH LTCOL CLENDENIN (HQ AFRES/DOOH), LTCOL CARTER (HQ ACC/BSD), TSGT POTTS (AF OPS SPT CTR), AND SSGT CONWAY (HQ AFRES/DOOC)//
RMKS/1. THE STATE OF FLORIDA HAS REQUESTED DOD ASSISTANCE FOR VECTOR SUPPRESSION OPERATIONS (INSECT SPRAYING) IN THE DISASTER AREA. INSECTS ARE BREEDING IN AREAS WHERE WATER STANDS, THUS CREATING A HEALTH PROBLEM. FCO HAS APPROVED THIS REQUEST UPON REVIEW BY STATE AND ESF NO. 6 OFFICIALS.
2. PER REF A, USAF DEP DOMS HAS TASKED 910TH AG, YOUNGSTOWN, OH THRU HQ AFRES TO FLY VECTOR SUPPRESSION MISSION AS REQUESTED.
3. ESTIMATED DURATION OF MISSION: 2 DAYS.
4. TWO MISSIONS ARE NEEDED AT THIS TIME. BE PREPARED FOR ADDITIONAL MISSIONS IF REQUIRED. COORDINATE SPECIFIC MISSION REQUIREMENTS WITH STATE PREVENTIVE HEALTH UNIT, JTF ANDREW J3 AVN, AND JTF ANDREW SURGEON.
5. POINTS OF CONTACT:
FORSCOM CAT: DSN 367-7682.
STATE PREVENTIVE HEALTH UNIT: CAPT GORHAM, (3[illegible] 243-7935/7938.
STATE HEALTH AND REHABILITATIVE SERVICES: MR. MITCHELL OR MR. FAIRWEATHER. (305) 870-5016.

ATCH 1

FEMA HURRICANE ANDREW EMERGENCY AERIAL SPRAY
910 AIRLIFT GROUP PARTICIPANTS
31 AUG - 06 OCT 92

OPERATIONS

1. MSGT FRANK J BABA, Jr., Spray Operator/Loadmaster
   (5 - 12 Sep, 15-18 Sep, 28 Sep - 6 Oct)

2. LT COL TERRY L BIERY, Certified Pest Management Professional
   (31 Aug - 19 Sep, 28 Sep - 6 Oct)

3. TSGT MICHAEL W BURGETT, Spray Operator/Loadmaster
   (28 Sep - 6 Oct)

4. TSGT GLENN P CARY, Flight Engineer
   (5 - 12 Sep, 15 - 18 Sep, 28 Sep - 6 Oct)

5. SSGT PAUL J CHOLEVA, Flight Engineer
   (28 Sep - 6 Oct)

6. MSGT MARK D DARBY, Spray Operator/Loadmaster
   (5 - 12 Sep, 15 -18 Sep)

7. MAJ MARTIN L DAVIS, Navigator
   (5 - 9 Sep, 28 Sep - 6 Oct)

8. LT COL WILLIAM P KANE, 910 OG Operations Group Commander
   (8 - 10 Sep)

9. CAPT EUGENE F LUCAS, Jr., Pilot
   (5 - 12 Sep, 15 - 18 Sep)

10. SSGT JOHN P MOLINO, Spray Operator/Loadmaster
    (5 - 12 Sep, 15 - 18 Sep)

11. LT COL LUNDY G O'DELL, Mission Commander/Navigator
    (5 - 9 Sep)

12. LT COL KENNETH N SNYDER, Mission Commander/Pilot
    (5 - 12 Sep, 15 - 18 Sep)

13. CAPT BRYAN L WATSON, Pilot
    (15 - 18 Sep, 28 Sep - 6 Oct)

14. MAJ EDWARD T WHITELEY, Mission Commander/Pilot
    (28 Sep - 6 Oct)

15. CAPT DAVID R WILES, Ground Operations Officer/Nav
    (5 - 12 Sep, 15 - 18 Sep, 28 Sep - 6 Oct)

JTF ANDREW SURGEON: (305) 876-1888.
6. SUPPORT IS REIMBURSABLE UNDER PROVISIONS OF THE STAFFORD RELIEF ACT OF 1988. CAPTURE ALL COSTS AND FORWARD SF 1080 WITH FEMA CONTROL NUMBER THRU HQ, DFAS-DE/YDG, DENVER, CO TO USATUO FOR REIMBURSEMENT. FEMA CONTROL NUMBER: FEMA-955-DR-FL.
7. SUBMIT TEMPEST RAPID REPORTS IAW AFR 55-55.
8. DIRLAUTH ALCON. KEEP FORSCOM INFORMED.//
BT
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NNNN

9. OBSERVATION: PHASE I

That adequate numbers and prompt cleaning of toilets was a major problem early in the operation.

DISCUSSION:

Lack of toilets and failure of the contractors to keep toilets clean was a significant problem in the early part of the deployment. The problem was addressed by reworking the contract by DFO. The solution included requiring all contractors to clean any toilet they found at any site. A central control point was also established at DFO level to facilitate requests for additional toilets and for requests for cleaning.

The final contract used in this operation should be used as a template for future contracts. A central point for managing toilet issues should be established as was done in this operation. Consideration should be given to procuring and stockpiling personal toilets such as the one described in Appendix 1 which could be rapidly transported in large quantities and used until portable toilets become available in sufficient numbers.

RECOMMENDATION:

That the contract for toilets developed in this operation be used as a template for future operations.

That consideration be given to stockpiling individual disposable toilets for future operations.

RECOMMENDATION:

That water quality be assessed immediately in future operations

That a comprehensive water quality program covering municipal systems, community well systems, and bottled water be initiated as soon as possible in disaster operations.

That a water systems engineer be available for future operations

10. OBSERVATION: PHASE I / II

That inadequate handwashing was a major problem at MKT sites and Life Support Centers (LSC).

DISCUSSION:

The provision of adequate handwashing facilities has been difficult throughout this operation. We have developed blueprints for handwashing devices (Appendix 2) which could be distributed throughout the AO but the engineer support to build the devices was difficult to obtain.

For future operations we must place handwashing devices high on the engineer priority list. We should also begin to search for civilian designed-off the shelf handwashing devices which could be procured in large quantities at time of deployment or procured and stored for future disaster operations.

RECOMMENDATIONS:

That provision of handwashing facilities be placed high on the engineer priority list for construction.

That suitable "off-the-shelf" handwashing devices be identified and procured for future operations.

11. OBSERVATION: PHASE I / II

That the solid waste problem in this operation was staggering.

DISCUSSION:

The massive amount of solid waste generated by the disaster quicky overwhelmed the local solid waste management systems. The environment of south Florida interfered with several of the more comman solid waste management techniques. Burial of the waste was not possible in south Florida due to the high water table and the underlying limestone formations.

The final contracts which led to the successful management of the solid waste burden should be used as a template for future operations. This contract should be let immediately after the initial assessment and be among the highest priorities for funding.

The accumulation of solid waste and household garbage are major public health issues. The accumulation leads to fly and rodent problems which in turn increase the risk of vector borne diseases.

The ability to augment the PM/PH assets with a solid waste expert from the Army Environmental Hygiene Agency (AEHA) was crucial to the accomplishment of the mission. In future disaster operations early augmentation with a solid waste expert should be considered. Expertise from AEHA may also be required in the area of air pollution should large quantities of solid waste need to be burned and local/state/federal air quality experts are not available.

RECOMMENDATIONS:

That the final solid waste contract implemented in this operation be used as a template for future operations.

That a solid waste expert be readily available for future operations.

11. OBSERVATION: PHASE I / II

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RECOMMENDATIONS:

That the final solid waste contract implemented in this operation be used as a template for future operations.

That a solid waste expert be readily available for future operations.

12. OBSERVATION: PHASE II

That the numerous issues related to the establishment of "tent cities"/Life Support Centers (LSC) in CONUS were more difficult than many of us comprehended.

DISCUSSION:

Numerous issues in regards to the Life Support Centers (LSC) require attention before future disaster operations.

Control

In most previous disaster operations in which refugee relocation sites have had to be established the issue of who was in control of the camps was clear. The camps have usually been under the control of the United Nations, an international relief organization, or the host nation. In this operation there was no clear control authority for the LSC's even as late as three weeks after the establishment of the LSC's. This fact is clearly related to the fact that this is the first time large scale LSC's have been established by the military in this country.

In future operations requiring establishment of LSC's, clear lines of authority must be established early. If Martial Law exists the military would of course be responsible for the LSC's and their support. However, as will be the usual case in CONUS these operations will not be conducted under martial law. Once the controlling authority (municipal,county,state) has been identified a "commission" to manage the LSC's should be formed. This "commission" should include representatives from:

- the local government
- police
- public health (local and state)
- mental health (local and state)
- volunteer organizations
- local medical/professional/hospital organizations
- military advisors in the areas of
  - public health
  - security
  - logistics

Publicity/Civil Affairs/Education

There was reluctance on the part of many storm victims to leave their homes to move into the LSC's. The resistence appears to have arisen from several sources. A comprehensive public relations campaign must be intiated to educate the population on the benefits of the LSC's. For those who fear that their few remaining belongings might be looted while they are residing in the LSC perhaps contracts for conex's in which the LSC inhabitants could store their belongings could be let.

An education campaign must be directed to the LSC inhabitants. This campaign should stress the rules of the LSC, sanitation and personal hygiene, and attempt to enroll the LSC inhabitants in taking responsibility for their own sanitation and their own groundskeeping and housekeeping.

Site Selection

LSC sites should not be selected haphazardly. Engineers and PM/PH personnel must be involved in site selection in conjunction with the local authorities.

The decision to establish a few large LSC's versus more numerous small/community LSC's must be reviewed. The benefits of the few large sites include logistical and security issues as well as facilitating effective utilization of scare manpower. However, smaller sites scattered among the communities should be considered in the next operation. The benefits of the community sites include the presence of pre-existing social support systems; and the ability of the families to maintain some observation of their property. The sense of community responsibility may also be enhanced by construction of smaller community oriented LSC's.

Special Needs Populations

In future operations we must consider special need populations in the establishment of LSC's. These populations include the frail and elderly who had great difficulties dealing with the heat and stress of the LSC's. Other special populations include the mentally ill and the developmentally disabled. The necessity of child care facilities must also be considered.

Subject matter experts in mental health, developmental pediatrics and geriatrics would be useful consultants in future operations.

RECOMMENDATIONS:

That the decision as to who controls the LSC's be made early and stated clearly in future disaster operations

That a commission comprised of representatives as stated above be formed early to advise whichever authority assumes control of the LSC's

That Civil Affairs be tasked to support the LSC's with health education and general education on camp rules and sanitation

That PM/PH personnel be consulted early in the site selection process for LSC's

That consideration be given to special needs populations in regards to LSC's and that advice from geriatricians, developmental pediatricians, and mental health personnel be sought.

13. OBSERVATION: PHASE I / II

That some units deployed without Field Sanitation Teams (FST) and without FST supplies

DISCUSSION:

Some units failed to deploy with a trained FST or failed to deploy with the required FST equipment. The need to supplement FST's diverted preventive medicine resources.

Each company size unit must have a trained and equipped FST. FST training should be provided when units return to garrison for those units without an FST.

RECOMMENDATION:

That FST be a priority for future disaster operations

14. OBSERVATION: PHASE II

That management of donations of food, water, clothing and medical supplies early in this operation was poor leading to wastage, spoilage, and maldistribution.

DISCUSSION:

A system must be in place in future operations to rapidly establish a central receipt and distribution point (depot) for water, food, clothing, and medical donations. The depot system would facilitate food and water inspections, proper storage of supplies and permit a distribution system to insure "first in..first out". The depot would also assist in ensuring equitable and timely distribution of supplies.

RECOMMENDATION:

That a depot system to handle food, water, clothing, and medical donations be established immediately on deployment to a disaster AO.

15. OBSERVATION: PHASE I / II

That vector survey and control issues were extremely important issue in this deployment and could have had major negative public health impact had it not been addressed quickly and professionally.

DISCUSSION:

Entomological issues were extermely important in this operation due to the south Florida environment and the large quantities of decomposing food and organic matter in the devastated areas. The mosquito problem which is a perenial problem in south Florida was complicated in this case by the large number of persons without adequate shelter who were at risk for bites. The problem was further complicated by the slight risk of encephalitis which had been a problem in north Florida for the past several years.

The coalition developed to address this problem in this operation is a model for future operations. The coalition included entomologists from CDC, USAF Reserve Aerial Spray Teams, local mosquito control personnel, Army preventive medicine and US Public Health Service personnel, and US Navy Disease Vector Control teams. The state contract with a major pest control company provided sorely needed manpower for pest control and should be used as a template for future contracts.

RECOMMENDATION:

The pest control contract should be used as a template for future disaster assistance operations.

16. OBSERVATION: PHASE I / II

That the ability to rapidly augment PM/PH assets with the EPICON team contributed greatly to the control of communicable diseases and the prevention of injuries.

DISCUSSION:

A disease/injury surveillance program must be established rapidly to monitor for disease/injury trends and to evaluate disease control efforts. This program must be a conjoint program with local/state surveillance programs. The EPICON team from Walter Reed Army Institute of Research was extremely effective in disease/injury surveillance efforts.

RECOMMENDATION:

That EPICON be tasked to support future disaster releif operations.

17. OBSERVATION: PHASE II

That the true requirement for post-disaster medical care has not been determined.

DISCUSSION:

The large influx of medical assets has affirmed the rule that "demand for medical care will expand to meet the assets available". The difficulty in determining post disaster medical care needs is complicated by the inability to accurately assess the post disaster population; the inability to determine the proportion of visits primarily or secondarily storm related; the disruption of pre-disaster medical services and the chronically underserved status of medical care in south Dade County.

The Department of Health and Rehabilitative Services grant request is an excellent comprehensive document which should serve as a template for future grant requests. The major problem with the grant was that it was developed without the input of the local primary care medical community. The local public health authorities clearly have an agenda which places little reliance on the private practice of medicine.

Should future circumstances require similar grant requests it is imperative that the Army not be perceived to be aligning itself with a particular agenda. A true coalition of both the public and the private medical communities must be formed to draft a course for future medical care in the disaster area.

RECOMMENDATION:

That the HRS grant for primary care be used as a template for future grants for post disaster primary care

That if the Army is involved in discussions leading to post disaster medical care grants that we attempt to insure that all sectors of primary care, both public and private, be involved in generating the plan for post disaster care.

18. OBSERVATION: PHASE I / II / III

That a health and medical task force be constituted immediately to coordinate health and medical issues.

DISCUSSION:

The decision to constitute a Health and Medical Task Force (HMTF) to organize, prioritize and coordinate health and medical issues was a key to the successful mission of the JTF medical elements. Members of the HMTF should include decision makers from the following organizations at a minimum:

- Local Public Health Agency
- State Public Health Agency
- USPHS
- FEMA
- DOD- medical
  - public health
  - mental health
  - medical logistics
- Local Professional Organizations
  - Hospital Association
  - Medical Society
  - Nursing Association
  - Dental Society
  - Veterinary Association
  - Pharmacy Association
- Local Mental Health Agencies
- State Mental Health Agencies
- EMS
- Volunteer Agencies
  - American Red Cross
  - Salvation Army

RECOMMENDATION:

That the establishment of a HMTF become doctrine for future disaster relief operations.

19. OBSERVATION: TYPE I / II / III

That a successful solution to collection and storage of biohazardous waste was developed early.

DISCUSSION:

HRS generated a contract for management of biohazardous waste which was effective and should be used as a template for future operations.

RECOMMENDATION:

That a contract for collection and management of biohazardous waste be let in future operations.

20. OBSERVATION: PHASE II

That Army Community Health Nurses (CHN) would have been excellent augmentees for the PM/PH organization.

DISCUSSION:

CHN could have been attached early to the Life Support Centers (LSC). CHN are trained in community assessment and are the ideal professionals to be able to address the medical needs of the LSC. CHN are also the logical choice to perform liaison roles with the local public health nurses. The local public health nurses were very active in this operation and the CHN would be valuable in insuring smooth transition from the "military heavy" health care system of the early phases to the "civilian heavy" system of the later phases.

RECOMMENDATION:

That PM/PH assets be augmented with CHN in future disaster operations.

RECOMMENDATION:

That water quality be assessed immediately in future operations

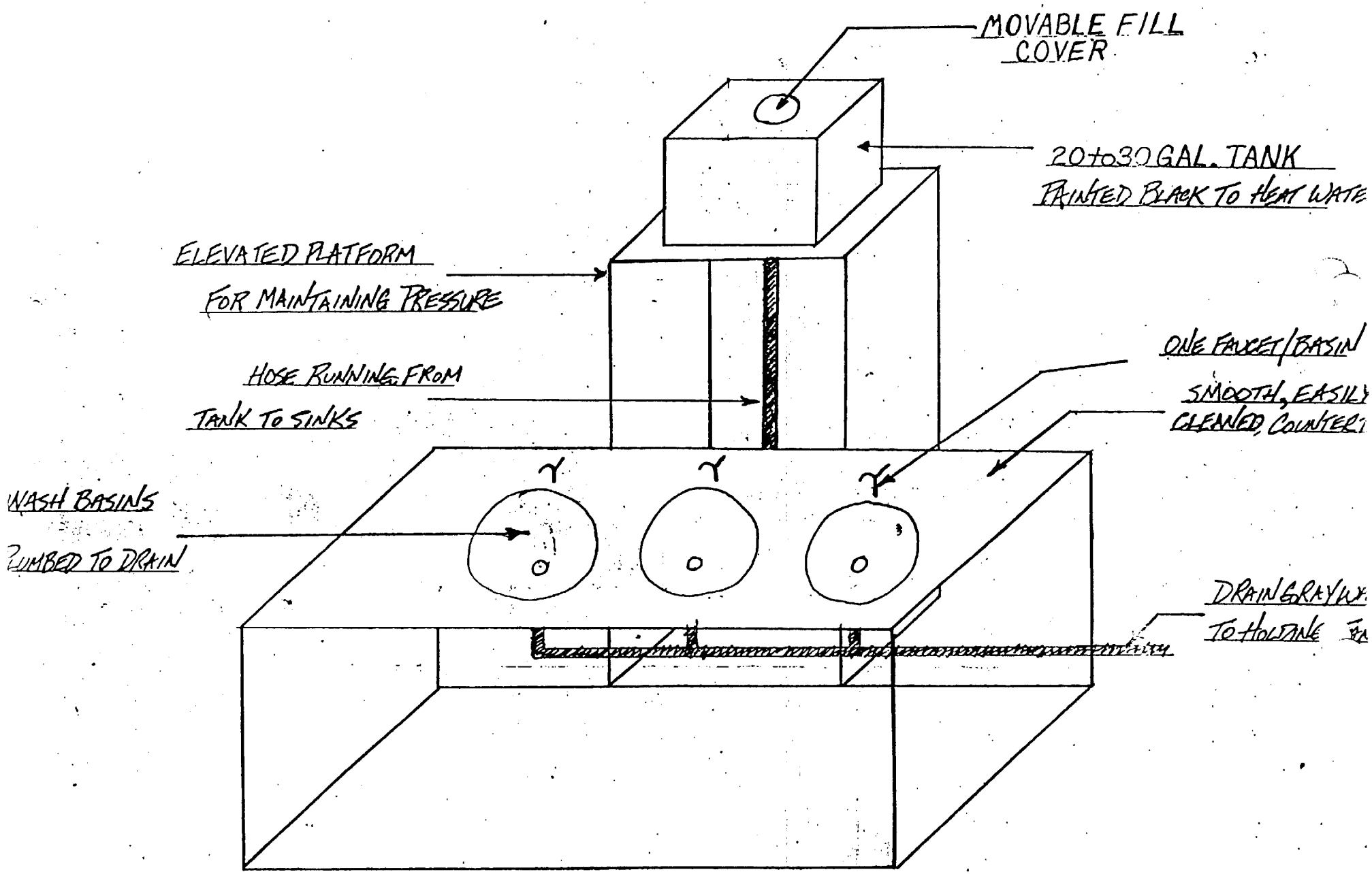
That a comprehensive water quality program covering municipal systems, community well systems, and bottled water be initiated as soon as possible in disaster operations.

That a water systems engineer be available for future operations

That procurement standards for bottled water be developed and that SOP's be developed for storage of bottled water

B. HANDWASHING DEVICE CONCEPTUAL DRAWING

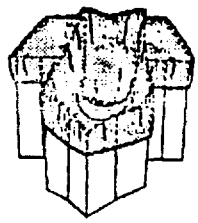
14 SEPT 92



N DRAWN TO SCALE

P.O. Box 102 • Patton, California 92369-0102
Telephone and FAX (714) 425-0124

PERSONAL COMMODE (P.C.)
HUMAN ECOLOGY TOILET



The P.C. human ecology toilet is reusable, portable (less than one pound), disposable, degradable and does not require any water or chemicals. Constructed of recycled fiberboard, it is designed to fit the unique form and dynamics of a seated person in the process of voiding.

The human ecology toilet is intended for use whenever/wherever proper facilities are inoperative/unavailable and when cost/environmental effectiveness is a priority... i.e., camping, back-packing, boating, military maneuvers, and most especially in disaster situations where intelligent emergency mass care is paramount. In addition, the P.C. is essential for those segments of the population that are vulnerable on a day-to-day basis...i.e., high-rise building emergency sanitation management, school campuses, infectious disease wards, isolated construction sites, forestry, fire fighting, farming/produce harvest sanitation, and a host of other 'in-the-field' professions.

The P.C.'s patented design is like no other in the world. The standard 10" human ecology toilet/seat when closed for storage, has the appearance of an ordinary textbook. When open and set up, it resembles three attached, rectangular, open-ended boxes. The opened unit has a pair of corrugated cardboard seat-flaps that operate in a hinged fashion at the rim of the middle box. These flaps interlock with the seat supports to assure structural integrity and comfort.

The P.C. uses special human ecology corn-starch-imbibed plastic bags for degradeability. These custom one-use liners are designed to fill the center chamber and cover the seat areas; minimizing hands/seat contact and maximizing sanitation. Each liner has a built-in tie-strip that seals the liner after use for disposal or [illegible]

Both the 10" and 16" models are adjustable for width and capable of supporting a seated weight up [illegible]
All models are shipped in 'tamper evident' reclosable seal-pull outer packages.

NOTES:

1. The P.C. is central to the human ecology Mass Care Toilet System available from Personal Commode.
2. Each P.C. can contain multi-lingual instructions upon request.
3. A standard air-lift pallet (80" x 80" x 100") will hold 2,300–2,800 Personal Commode Human Ecology Toilets with a gross weight of 2,600–3,300 lbs. P.C.'s are air-droppable.
4. Detailed ground/air international specification sheets are available on request.

Patent # 5,040,249
Available under GSA# GS-07F-5175A, FSC Group 4510, NIIS numbers F-0711 to F-0716

GENERAL SERVICES ADMINISTRATION
FEDERAL SUPPLY SERVICE
Authorized Federal Supply Schedule Pricelist (Catalog)

New Item Introductory Schedule, FSC Group 4510

FSC Class: 4510

Contract Number: GS-07F-5175A

Contract Period: April 28, 1992 – March 31, 1995

Contractor: **Personal Commode**
P.O. Box 102
Patton, California 92369-0102
(714) 425-0124
FAX (714) 425-0124

Business Size: Small

1a. Award Special Item Numbers F-0711, F-0712, F-0713, F-0714, F-0715, F-0716.

1b.

NIIS #	MODEL	NOMENCLATURE	PRICE/UNIT
F-0711	S-P	10" Notebook size — PLAIN	$5.00
F-0712	S-W	10" Notebook size — WHITE	5.50
→ F-0713	S-FC	10" Notebook size — FOREST CAMOUFLAGE	6.00
F-0714	PC-MC	36 PC Units with 1 large liner and warning labelling.	$193.00
☆ → F-0715	RLB-12	12 single bags for individual issue	$ 1.11
☆ → F-0716	RLB-1500	1,500 loose liner bags for mass issue	$135.00

2. Maximum Order Limitation: **$10,000**
3. Minimum Order: **1 Unit**
4. Geographic Coverage: **48 contiguous States and District of Columbia**
5. Point of Production: **Los Angeles, Los Angeles County, California**
6. Discount from List Prices or Statement of Net Price: **See Net Pricing, Page 2**
7. Quantity Discounts: **None**
8. Prompt Payment Terms: **2%-10 days, net 30**
9a. Government commercial credit card accepted: **Yes**
9b. Discount for payment by Government commercial credit card: **No**
10. Foreign Items: **None**
11. Time of Delivery: **30 days for up to 5,000 units**
12. F.O.B. point: **Destination**
13. Ordering address: **Personal Commode, P.O. Box 102, Highland, California 92**
14. Payment address: **Personal Commode, P.O. Box 102, Highland, California 92**
15. Warranty Provision: **Compliance with Clause 552.246-17**
16. Export packing charges: **N/A**
17. Terms and conditions of Government commercial credit card acceptance: **See 9a**
18. Terms and conditions of rental, maintenance and repair: **N/A**
19. Terms and conditions of installation: **N/A**
20. Terms and conditions of repair parts: **N/A**
21. List of service and distribution points: **N/A**
22. List of participating dealers: **N/A**
23. Preventive maintenance: **N/A**

DUE TO EXTRAORD
SITUATION ONLY F-07
IS AVAILABLE BUT AT
(5.00) F-0711 PRICES

Post Disaster Human Ecology Mass Care Toilet System (MCTS)

(Each MCTS contains 36 Personal Commodes, each with 3 liner bags; 1 large disposition liner bag; warning labelling. Biohazard/Odor Eliminating Desiccant available on request.)

- *provides immediate sanitation/recovery/containment, customer convenience, optimum use of available manpower, and immediate cost-effective response.*
- *immediate and effective control of dysentery, cholera and other related diseases due to insect vector and multiple-seat-contact; and offensive odors.*

— Field/Outdoor Scenario —

Illness/Circumstances and Response:

ong term (3+ days anticipated) camp environment.

Assign an MCTS monitor.

ploy MCTS' to pre-designated areas and maintain a suggested five hundred (500) feet from food storage, food preparation, living or medical attention areas.

Place MCTS in an open large liner bag on level ground. In wet conditions, cover MCTS with an open large liner bag.

Remove box of (1,500) liner bags and all Personal Commodes.

Deploy "Personal Enclosure(s)" in MCTS immediate area.

Issue Personal Commodes and liner bags as situation dictates.

Instruct everyone as to where and how to dispose of used/sealed waste liner bags (in large disposition liner provided).

Seal full large disposition liner bags and inform local health officials of your immediate disposition requirements.

— Multiple/Ground Floor School Scenario —

Conditions/Circumstances and Response:

1. **Temporary loss (3+ days anticipated) of main water pressure; toilets disabled.**
   a. Assign an MCTS monitor.
   b. Instruct staff/students at all floor levels to refrain from using toilets.
   c. Place MCTS' in existing restrooms.
   d. Remove box of (1,500) liner bags and all Personal Commodes.
   e. Issue Personal Commodes and liner bags as situation dictates.
   f. Instruct everyone as to where and how to dispose of used/sealed waste liner bags (in large disposition liner provided).
   g. When full, seal large disposition liner bags and remove to final disposition area. Inform local health officials of your immediate disposition requirements.

2. **Partial or entire loss of structure integrity; temporary to long-term evacuation.**
   a. Assign an MCTS monitor(s).
   b. Instruct staff/students at all floor levels to refrain from using toilets.
   c. Deploy MCTS' to pre-designated areas and maintain a suggested five hundred (500) feet from food storage, food preparation, living or medical attention areas.
   d. Remove box of (1,500) liner bags and all Personal Commodes.
   *e. Deploy "Personal Enclosure(s)" in MCTS immediate area.
   **l. Issue Personal Commodes and liner bags as situation dictates.
   g. Instruct everyone as to where and how to dispose of used/sealed waste liner bags (in large disposition liner provided).
   h. When full, seal large disposition liner bags and remove to final disposition area. Disposition area should be a suggested five hundred (500) feet from food storage, food preparation, living or medical attention areas. Inform local health officials of your immediate disposition requirements.

ar extended emergency, additional waste liner bags and/or Personal Commodes may be available through your local American Red Cross.
ersonal Enclosure" is a tent-like, one person, water-resistant cover designed for temporary privacy (available at additional cost).
ailable under GSA # GS-07F-5175A, FSC Group 4510, NIIS #F-0714 PC-MC (Personal Commode Mass Care)

P.O. Box 102 • Patton, California 92369-0102 • [illegible] and FAX (714) 425-0124

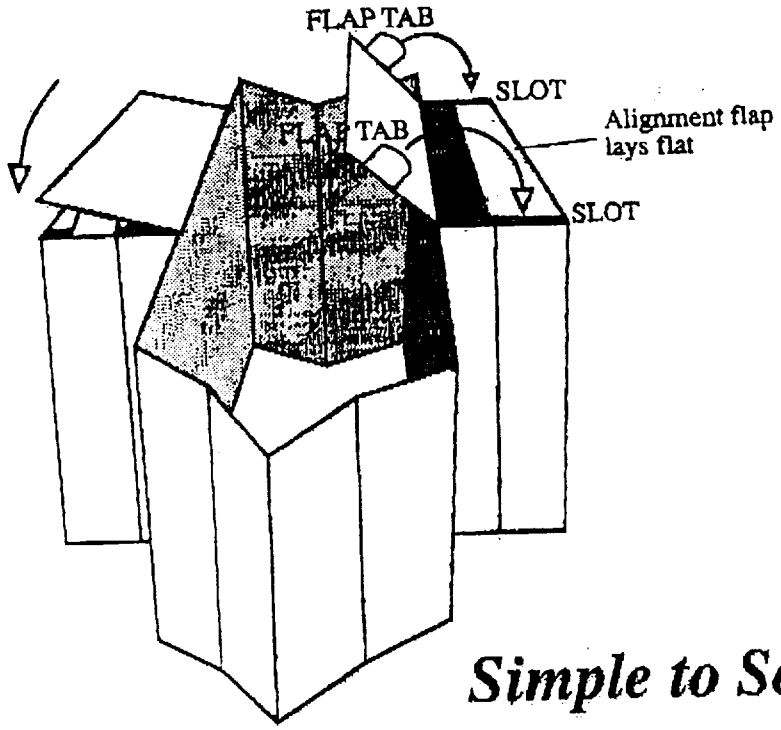
NEW SUPPLY ITEM!

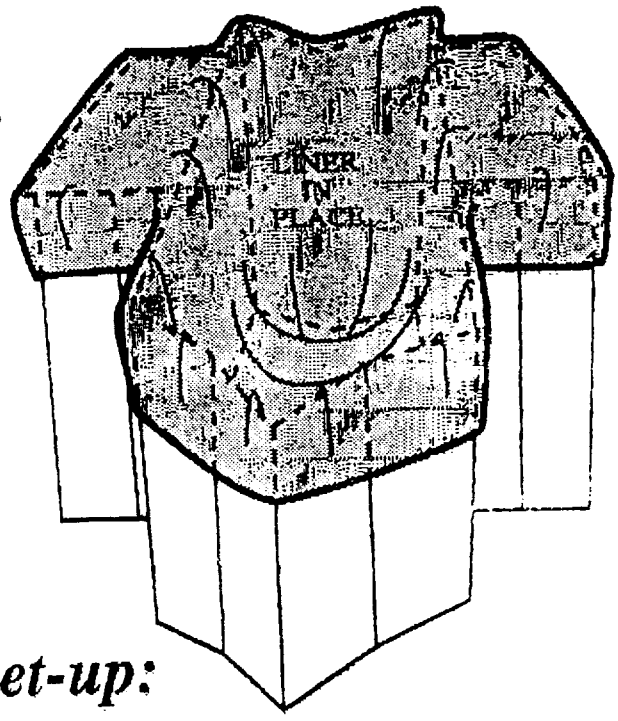
The Personal Commode human ecology toilet and seat is notebook size, one pound (1 lb.), reusable, degradable, recyclable and will support anyone up to 1,200 lbs. Three (3) human ecology liner bags and a resealable carry bag are included.

Personal Commode Mass Care (PC-MC) human waste management system* for:

- Military encampments, mobility, construction, etc.
- Post Disaster Disease Control (cholera, hepatitis, etc.)
- Building water and power outages

TO ORDER SEE NEW ITEM INTRODUCTORY SCHEDULE (NIIS) OR GSA PRICE LIST





Simple to Set-up:

As a seat: expand P.C. on level ground. Insert seat flap tabs into seat slots. Test that unit is secure and stable.

As a toilet: tuck a liner into the chamber and cover the seat flaps. Center your weight and adjust the width for comfort.

THE GENUINE
PERSONAL COMMODE

*Wet environment information available

MADE IN THE U.S.A.

CENTER for ARMY LESSONS LEARNED

OBSERVATION WORKSHEET

ROTATION/EXERCISE: HURRICANE ANDREW RELIEF OBSERVER: CPT RYAN TF PM

UNIT/PROPONENT: 714th MED DET Phone #: [AV] 236-3776/3065

DATE: 9/22/92 Observation #: 1

Doctrine, Training, (Organization), Material, Leadership (*Circle all that apply.*)

ECHELON: EAC, Corps, Division, Brigade, BN/TF, CO/TM, Platoon, Sqd/Crew/Ind, (Joint), Combined

KEYWORDS: (A complete keyword list is on the reverse of this form, circle all that apply.)

OBSERVATION: State and Local officials had no clear idea what Preventive medicine issues and actions constituted the emergency response phase vs. sustainment phase, clouding the transition.

DISCUSSION: Army Preventive Medicine was involved in every aspect of emergency response in Environmental Sanitation areas. No one governmental agency was looking at the big picture from early on. This became evident when the Preventive Medicine Cell in ESF 8 was tasked to provide a phased transition/hand over plan to the presidential appointee chairing ESF 8. The project was given to the Army preventive medicine representative since we had a handle on all issues. The emergency response milestones were outlined in the plan as it was presented to the committee. The plan was accepted by all parties. Six days later, State Department of Health and Rehabilitative Services representatives requested further military assistance in a major project that was considered by the plan to be a sustainment issue. After the project was put through channels for action the USPHS/DHRS Preventive Medicine Cell drafted another transition plan that was completely different in scope and content. Nevertheless, transition is complete, but confusion exists as to just who the lead element should be to determine which issues and milestones truely constitute emergency response involvement and actions for military organizations.

RECOMMENDATION: Transition plans need to be a collaborative effort with all parties agreeing from a very early stage just what issues need to be addressed during Phase I: Emergency Response.

Attach more pages if additional space is needed!

91-5197

CENTER for ARMY LESSONS LEARNED

OBSERVATION WORKSHEET

ATION/EXERCISE: HURRICANE ANDREW RELIEF OBSERVER: CPT RYAN TF PM

PROPONENT: 714th MED DET Phone #: (AV) 236-3776/3065

DATE: 9/22/92 Observation #: 2

Doctrine, Training, (Organization), Material, Leadership (*Circle all that apply.*)

ECHELON: EAC, Corps, Division, Brigade, BN/TF, CO/TM, Plat, Sqd/Crew/Det, Joint, Combined

KEYWORDS: (A complete keyword list is on the reverse of this form, circle all that apply.)

OBSERVATION: Preventive Medicine Units were piece-meaked into the D/to over a 10 day period. Preventive medicine issues were most intense during that period, insufficient assets initially to perform the work.

DISCUSSION: Two preventive medicine units were sent to address the most immediate concerns. Initial assessments by unit OIC's revealed the need for more Preventive Medicine Assets and Special augmentation from the Army Environmental Hygiene Agency. Preventive Medicine Unit leaders and soldiers worked 20 hour days to address the most serious problems. More assets should have been on the ground at an earlier date providing that this operation revolved around public health issues, the preventive medicine personnel acting as scouts to find, resolve, and check on each deficiency they noted.

RECOMMENDATION: Have the FORSCOM Surgeon ensure that active Preventive Medicine assets are brought into the operation within the first two days of any disaster relief mission.

(Use reverse or plain paper if additional space is needed)

91-5197

CENTER for ARMY LESSONS LEARNED

OBSERVATION WORKSHEET

ROTATION/EXERCISE: Hurricane Andrew Relief OBSERVER: CPT Ryan TF Pm

UNIT/PROPONENT: 714th MED DET Phone #: [AV] 236-3776/3065

DATE: 9/22/92 Observation #: 4

Doctrine, Training, Organization, Material, Leadership (Circle all that apply)

ECHELON: EAC, Corps, Division, Brigade, BN/TF, CO/TM, Platoon, Sqd/Crew/Det, Joint, Combined

KEYWORDS: (A complete keyword list is on the reverse of this form, circle all that apply.)

OBSERVATION: Division and CORPS units deployed without a functional Field Sanitation Team or field sanitation related supplies.

DISCUSSION: FM 40-5 Requires all Company sized elements to have a functional Field Sanitation Team consisting of one NCO, one EM and numerous items of field sanitation related supplies and equipment. A QUERY of Division ESO's and numerous visits to deployed units revealed that ~95% of these units had no functional Field Sanitation Team. Initially, Preventive Medicine Units were flooded with requests for routine company level services. This situation contributed significantly to the overload we experienced. This has been an ongoing problem annotated in every AAR after a CORPS level exercise or operation.

RECOMMENDATION: (1) Place emphasis on having "functional" Field Sanitation Teams at every Company level unit.

(2) Put a 91S at every CLACC when units are EDRE'd to ensure we know the status of each unit.

Attach more pages if additional space is needed!

91-5197

CENTER for ARMY LESSONS LEARNED

OBSERVATION WORKSHEET

OPERATION/EXERCISE: HURRICANE ANDREW RELIEF OBSERVER: CPT RYAN TF PIN

OBSERVER PROPONENT: 714TH MED DET Phone #: [AT] 236-3776/3665

DATE: 9/22/92 Observation #: 3

(Doctrine, Training, Organization, Material, Leadership) (Circle all that apply.)

ECHELON: EAC, Corps, Division, Brigade, (BN/TF) CO/TM, Platoon, Sqd/Crew/Det, (Joint), Combined

KEYWORDS: (A complete keyword list is on the reverse of this form, circle all that apply.)

OBSERVATION: Six preventive medicine units were brought together to make a preventive medicine task force. Many units were not prepared to deploy and perform their mission due to lack of training or local emphasis on unit readiness.

DISCUSSION: Upon deployment 2 of six units had significant maintenance problems, crippling their unit in the first three days in the AO. Three of six units were slow to come up to the performance level required to adequately handle the volume of mission related functions. These three units were handicapped by poor leadership and numerous problems with personnel, some of which, should not have been deployed. These units with problems can be attributed to a lack of emphasis for preventive medicine, maintenance training and readiness at their parent organization and home station. Preventive Medicine units should be [redacted] among the first ~~unit~~ medical units called upon in the event of a disaster. All the components of readiness must be emphasized regardless of parent unit, mission or home station. Standards must be made clear across the board to establish a functional preventive medicine component capable of handling disaster relief and contingency missions.

RECOMMENDATION: (1) Have the FORSCOM Surgeon's office look at the readiness of each preventive medicine unit relative to their ETX transition and relationship to its parent organization.

(2) Move the majority of Preventive Medicine Detachments to FORT Bragg forming a Preventive Medicine Battalion with complete staff and support assets. Give each 2 airborne slots and organize by echelons.

(Use another piece of paper if additional space is needed)

91-5197

CENTER for ARMY LESSONS LEARNED

OBSERVATION WORKSHEET

OPERATION/EXERCISE: Hurricane Andrew Relief OBSERVER: CPT Ryan TF PM

UNIT/PROPONENT: 714th MED DET Phone #: [AV] 236-3776/3065

DATE: 9/22/92 Observation #: 5

Doctrine, Training, Organization, Material, Leadership (Circle all that apply.)

ECHELON: EAC Corps, Division, Brigade, BN/TF, CO/TM, Plat, Sqd/Crew/Det Joint, Combined

KEYWORDS: (A complete keyword list is on the reverse of this form, circle that apply.)

OBSERVATION: The Preventive Medicine element functioned as a Preventive Medicine Battalion comprised of six detachments and Special augmentees with no staff available to make routine functions happen.

DISCUSSION: Personnel were pulled from 2 small preventive medicine units to give the complement of a Bn staff. This was necessary to keep the Area Support concept functional and inform the command group of all preventive medicine issues. Without taking the manpower from these small units the entire Preventive Medicine Complement would have no focus. Removing these individuals detracted from individual unit's mission, in one case, removing the unit commander and First Sergeant; however, the overall capability of the preventive medicine element was enhanced.

Under new doctrine the Area Medical Support Battalion would gain Command and Control of PM units with PROFIS additions to their staff. The 261ST ASMB had just activated and had no PROFIS Preventive Medicine personnel identified.

Under old doctrine an AM team would be formed with PROFIS personnel to perform the Bn staff functions and Command and Control PM units in Area Support functions. The problem lies in that we were in between old and new doctrine.

RECOMMENDATION: Ensure FORSCOM follows one doctrine OR the other to effectively command, control and support all preventive medicine assets so that each unit can totally focus on its area support mission.

Attach more pages if additional space is needed!

91-5197

A Typical Preventive Medicine Day in JTF-Andrew

53 city water samples

3 tent cities

24 entomological surveys

14 adult mosquito control applications

7 ant control applications

60 trash receptacle inspections

22 water containers (30,000 gal)

1 water distribution system

1 mosquito larvacide application

7 fly control applications

260 portable toilet inspections

21 MKT site inspections

HURRICANE ANDREW MOSQUITO CONTROL PROGRAM

MOSQUITO POPULATIONS IN THE DISASTER AREA WERE CONTROLLED BY A COLLABORATIVE EFFORT BETWEEN ARMY, NAVY, AND AIR FORCE ENTOMOLOGY TEAMS AND COUNTY GOVERNMENT ABATEMENT ASSETS. CURRENTLY, MOSQUITO POPULATIONS ARE AT PRE-DISASTER LEVELS, WELL BELOW ESTABLISHED CRITERIA TO JUSTIFY AERIAL APPLICATION OF PESTICIDES. THE SURVEILLANCE PROGRAM NEEDED TO MONITOR THE LEVEL OF NUISANCE MOSQUITOES AND POTENTIAL DISEASE-VECTORING SPECIES WAS TURNED OVER TO DADE COUNTY ON 18 SEPTEMBER. INITIAL ARBOVIRAL TESTING RESULTS BY THE CENTERS FOR DISEASE CONTROL ARE ALL NEGATIVE FOR SAINT LOUIS ENCEPHALITIS AND CALIFORNIA ENCEPHALITIS GROUP SEROTYPES. DADE COUNTY MOSQUITO ABATEMENT DISTRICT (MAD) HAS 1 BEACHCRAFT TWIN ENGINE PLANE AND A BELL HELICOPTER SPECIALLY RIGGED FOR AERIAL PESTICIDE APPLICATION. DADE COUNTY MAD HAS SUFFICIENT GROUND FOGGING UNITS TO TREAT "HOT SPOTS" AS NEEDED. DADE COUNTY MAD HAS ASSUMED RESPONSIBILITY FOR FOGGING REQUIREMENTS IN AND AROUND TENT CITIES. IF NEEDED, ADDITIONAL AERIAL ASSETS (6 DC3'S FROM LEE COUNTY, AND/OR 1 SPECIALLY MODIFIED C130-H FROM THE U.S. AIR FORCE) MAY BE CALLED UPON, SHOULD SURVEILLANCE DATA INDICATE FURTHER LARGE AREA MOSQUITO ADULTICIDING IS REQUIRED. REPELLENTS ARE AVAILABLE AT DISTRIBUTION CENTERS FOR DISPLACED PERSONS.

MEDICAL CATEGORIES

ENVIRONMENTAL SANITATION	AMBER ⊕	AMBER ⊖ AMBER
	GREEN ⊖	AMBER GREEN
	GREEN	GREEN GREEN
	AMBER ⊕	AMBER ⊕ AMBER
	GREEN	GREEN

DEPARTMENT OF THE ARMY
Headquarters, 714th Medical Detachment
Fort Bragg, North Carolina 28307-5000

AFVH-XA-O Sep 92

MEMORANDUM FOR RECORD

SUBJECT: Hurricane Andrew Relief Mission; After Action Report

1. GENERAL.

2. MISSION.

3. ACCOMPLISHMENTS.

4. STATITICS BY FUNCTIONAL AREA.

a. No. of Sanitary Inspections

b. No. of Water Surveillance Missions

(1). City Water Lines; Point Check

(2). Water Trailers

(3). Bottled Water Samples

(4). Water Tankers

(5). Well Water

c. Entomological Services.

(1). Site Surveys Performed

(2). Fly Control

(3). Mosquito Control; Ground Fogging

(4). Mosquito Control; Larviciding

(5). Ant Control

(6). Air Force Aerial Spray (Acres Covered)

5. LESSONS LEARNED.

a. Initial Assessment

b. Unit Deployments

(1). 155th Medical Detachment (LX, Sani)

(2). 714th Medical Detachment (LX, Ento)

(3). 61st Medical Detachment (LB, Sani)

(4). 485th Medical Detachment (LA, Ento)

(5). 225th Medical Detachment (LC, Sani)

(6). 926th Medical Detachment (LB, Sani)

(7). AEHA Augmentees -

a. CPT Matthew Woodbury - Solid Waste

b. 1LT Timothy Bosetti - Water Systems

c. Area Support Array

d. Role of Preventive Medicine Units in Crisis Response

e. Divison Control of Area Support Assets

f. Restoration of Water System

g. Solid Waste Management

h. Transition Planning

i. "Battle Handoff"

j. Working with FEMA, USPHS & Local Government Agencies

k. Redeployment

6. **Recommendations.**

7. POC this Headquarters is CPT Jeffrey R. Ryan; comm (919) 396-3996/3054/3065.

JEFFREY R. RYAN
CPT, MS
Commanding

CF:
Cdr, 56th Medical Bn

Cdr, 44th Medical Brigade
Cdr, XVIII Abn Corps, ATTN: Corps Surgeons Office
Cdr, 155th Medical Detachment
Cdr, 61st Medical Detachment
Cdr, 225th Medical Detachment
Cdr, 926th Medical Detachment
Cdr, 485th Medical Detachment
Cdr, Forces Command, ATTN: Surgeons Office
OTSG, ATTN: Entomology Consultant
OTSG, ATTN: Environmental Science Consultant
Cdr, USAEHA Aberdeen Proving Ground, MD
Cdr, USAEHA-N, Ft Meade, MD

UNCLASSIFIED
FRAGO

- ⊗ Received 485, 225, & 926th MED DET fully closed
- ⊗ Moved 61ST & 485th into sector w/ 82nd PM
- ⊗ 926th & 225th conducted recon of area
- ⊗ Air Force Spray mission - Phase 1 complete

- ⊗ Establish Lines of Communication to tie PM assets in area support roles
- ⊗ Define Area support missions - each unit briefs concept/role
- ⊗ Exercise request from Division sectors

- 7,700 Acres sprayed
- Spot Treatments
- 88 Water Samples
- Sanitation Inspections

AREA Support ASSETS Required to support this mission are in place & working - Continue the Mission.

PREVENTIVE MEDICINE

- ~~Food~~ must Food and water receipt, inspection, and distribution centers must be established early. ~~and rigid enforcement~~.

- ~~Volunteer~~
- must A central volunteer information and control center must be established immediately.

- ~~A portable-toilet~~
- must A "boiler-plate" portable toilet contract needs to be developed
- must A "boiler-plate" solid waste collection contract needs to be developed
- must Preventive medicine units should be placed high on priority of deployment list

MED LOG

- A disaster-relief class XVIII supply list must be developed

- ~~Epidemiological disease/injury surveillance teams~~ ~~must~~ must be deployed early

- ~~A disaster~~

that Physicians ~~specialty mix~~ required mix for disaster relief are ~~is~~ different from ~~specialty mix~~ those required for combat.

that Joint public health task force ~~must~~ including civilian elements must be established early to organize and prioritize public health effort.

That Relief efforts must be prioritized ~~by~~ ~~public health~~ on basis of public health threat not political, ~~by~~ military, or PAO priorities.

that Civil affairs / psyops augmentation to medical force must be accomplished early.

that Plans for management of elderly / frail displaced persons must be ~~Secured~~ developed early.

that Organization, structure, command + control for refugee sites (family support centers) must be established early and enforced.

That There is little or no training for disaster relief operations in the JAMMED school curriculum.